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# DEPARTMENT OF TRANSPORTATION

## Coast Guard

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# MARINE SANITATION DEVICES

## Proposed Certification Procedures and Design and Construction Requirements

## DEPARTMENT OF TRANSPORTATION

### Coast Guard

### [ 33 CFR Part 159 ]

[CGD 73-83P]

## MARINE SANITATION DEVICES

### Proposed Certification Procedures and Design and Construction Requirements

This notice proposes Coast Guard regulations governing the design, construction, testing, cerification, and manufacture of marine sanitation devices.

*Written comments.* Interested persons are invited to submit written comments and suggestions to the Executive Secretary, Marine Safety Council (G-CMC/82), Rom 8234, 400 Seventh Street, SW., Washtington, D.C. 20590. Each person submitting a comment should include his name and address, identify this notice (CGD 73-83P), and give reasons for any recommendations. All comments will be available for examination in Room 8234.

*Public hearing.* The Coast Guard will hold a hearing on May 1, 1974 at 0930 in Room 2234, Department of Transportation, Nassif Building, 400 Seventh Street, SW., Washington, D.C. It is requested that anyone desiring to present a statement at the hearing notify the Executive Secretary at least 10 days before the hearing of the time needed for his presentation. Written summaries or copies of oral presentations are encouraged.

*Closing date for written comments.* All comments received before Tuesday, May 14, 1974 will be evaluated before final action is taken on this proposal. The proposed regulations may be changed in the light of comments.

An advance notice of proposed rulemaking was issued by the Coast Guard on June 18, 1973 (38 FR 15918) for the purpose of obtaining data, views, and comments that might assist the Coast Guard in drafting rules governing the design, construction, installation and operation of marine santitation devices.

The Coast Guard held two meetings with members of the public, industry, and news media and received 372 written comments. The comments and minutes of the meetings are available for public examination in the office of the Executive Secretary.

The Coast Guard referred 148 letters submitted in response to the advance notice to The Environmental Protection Agency because the comments were addressed to that agency's standards.

The preamble to that advance notice of proposed rulemaking quotes extensively from applicable provisions of the FWPCA and discusses the EPA standards; the Coast Guard's role in implementing the law and EPA standards; the manufacturing and certification regulations in the advance proposal; the Coast Guard's intentions with respect to its authority to waive standards and regulations, and the Coast Guard's intentions with respect to certifying existing or presently installed devices.

This proposal is directed solely to the manufacture and certification of marine sanitation devices and their design and construction.

To assist the Coast Guard in the finalization of this regulation a private testing laboratory has been contracted to conduct an initial trial and evaluation of the testing provisions of this proposed regulation on some representative marine sanitation devices.

The part of 33 CFR in which these regulations would appear has been changed from Part 161 in the advance proposal to Part 159 in this proposal.

### SUBPART B

Subpart B contains the procedures for certification of marine sanitation devices and recognition of facilities for the purpose of conducting tests and evaluations of marine sanitation devices. The procedure for applying for certification allows any manufacturer to apply to any recognized facility for certification of a marine sanitation device. The requirement for the transmittal with the application for certification of a description of the manufacturer's record system has been changed from the advance proposal to require a description of only the record keeping system pertaining to the manufacture of marine sanitation devices.

The procedure for certification of a device is changed from the advance proposal. A recognized facility, to whom application has been made to evaluate and test the device, forwards to the Coast Guard a signed report of the evaluation and tests conducted. Based on the report, the Coast Guard determines whether the test device meets the requirements of the regulations and notifies the manufacturer of its findings. Appeal procedures are provided. A certification would be valid for 5 years, renewable upon written request of the manufacturer.

Section 159.19 provides for certification on the basis of previous tests of a device to avoid additional testing of devices that have been tested to equal or greater standards. The Coast Guard would analyze the methods and reports of such tests before certifying a device that has been tested other than in accordance with this part. This section also provides for review and acceptance of tests other than those required in the proposed rules to provide for unusual situations and devices when the required tests may be difficult or inappropriate.

This proposal would require that the manufacturer report each change to a certified device to the Coast Guard. This report must be accompanied by the recommendations of the manufacturer and a recognized facility as to whether the device is in all material respects substantially the same as the certified device. After the Coast Guard reviews the report, it would notify the manufacturer and the recognized facility of any tests that must be made for certification of the changed device.

Many comments, particularly from residents of Oklahoma, expressed concern with the effect of these regulations on their existing devices. The act allows the Coast Guard to waive the standards and regulations for certain vessels. These proposed regulations allow the certification of devices if previous tests for the device, though different from the Coast Guard certification test, are effective in showing the performance of a device. Owners of existing vessels with installed devices will have five years to have their device certified or waived from the standards or regulations.

To enable vessel manufacturers and operators to determine which devices are in all material respects substantially the same as a certified test device, § 159.-16 proposes to allow manufacturers of a device to label each device with a certification that the device is in all material respects substantially the same as the appropriate certified test device. This certification by the manufacturer would be the certification required by section 312(h)(4) of the Act, which makes it unlawful for a vessel subject to the standards and regulations to operate on the navigable waters of the United States if such vessel is not equipped with an operable marine sanitation device certified pursuant to section 312. The Coast Guard proposes § 159.7 to make it clear the section 312(h)(4) is interpreted as requiring the certification of the manufacturer. Section 159.5 is proposed as a necessary requirement to assure that only devices bearing the manufacturer's certification are installed in vessels.

### SUBPART C

As a result of comments received and further testing by the Coast Guard, the requirements for the design, construction, and testing of marine sanitation devices have been more completely set forth. Several requirements have been added to those in the advance proposal to assure that certified marine sanitation devices will have a reasonable service life in the marine environment, be easy to operate, and operate safely. These proposed design requirements and test procedures are not inconsistent with the International Convention for the Prevention of Pollution from Ships, 1973. The Boating Safety Advisory Council and other appropriate Commandant's advisory committees will continue to consider regulations as they are developed.

Section 159.55 (Identification) is more extensive than the advance proposal on identification. Section 159.55(a) now defines how a device is to be permanently marked for identification. This information will aid the consumer in choosing an appropriate device and installing and operating it on his vessel. The date required to be marked on the device by § 159.55(a)(3) will facilitate identification of devices in service for such purposes as enforcement, notification of defects, and maintenance.

The proposed requirements for instructions to be supplied by the manufacturer in § 159.57 are more extensive than

the advance proposal. These instructions are intended to provide the information necessary for the user to operate the device safely, repair the device easily, and maintain the device in a manner so that it will not pollute.

Section 159.61 is a new section. The vents which prevent pressure build up must not clog as they would no longer be effective in preventing pressure build up.

Section 159.63 is basically unchanged from the advance proposal.

To prevent the device from stopping its operation or from possibly being damaged, § 159.65 requires that it be designed so that the user knows how much chemical for treating sewage he has in the device.

The probability of a device being used in a warm climate in an enclosed compartment is the reason that § 159.69 requires that the motor be rated for high temperature.

Section 159.71 requires that the wiring be protected from chemicals and sewage. The wire must be stranded when it is subject to vibrations caused by the operation of the device to prevent breakage of the wire.

Section 159.79 is intended to prevent the loosening or breaking of wires from their contact points and the touching of terminals and metal.

Section 159.83 is intended to give the user of a sewage retention tank information on the level of sewage in the tank.

Section 159.87 standardizes the sizes of sewage removal fittings and adapters. Acceptable types of fittings include threated, flanged, or quick disconnect fittings.

Section 159.91 enables a discharge sample to be safely taken to conveniently ascertain whether the device is working properly.

TESTING

Sections 159.101 through 159.125 concern the laboratory testing of the devices for certification. The tests subject the device to various kinds of strain including vibration, pressure, temperature variation and chemical resistance. After these tests the device must process sewage.

Section 159.101 is new. It specifies the order of testing. By placing the sewage processing test after the structural and temperature tests, the performance of the device will be most severely tested.

Section 159.103 is a new section. Its purpose is to test the device for its ability to withstand long periods of vibration.

Section 159.105 is new. This requires a test of the shock absorbing ability of the device. The test simulates a planning hull vessel.

Section 159.107 no longer requires that the device process sewage during the test. The angular magnitude of the roll has been increased from 5° to 15°. The maximum roll will be greater than 30° if specified by the manufacturer under section 159.55(a)(10) to provide for more realistic testing of devices to be installed in sailboats or other vessels that would tend to heel more than 15°.

Section 159.109 is new. It tests the ability of the device to withstand pressure from the inside, which could be caused by gas build up. It also tests for pressure on the outside as a result of the vacuum that may be created by pumping sewage out of the device.

Section 159.115(a) changes the period that the device must be exposed to extreme cold from 24 hours in the advance proposal to 16 hours.

Section 159.115(b) changes the temperature from 70° to 60°C. Many comments received pointed out that 70°C is excessive.

Section 159.117(a) has been clarified and expanded from the advance proposal. All materials of the device need not be submitted to this test since it is obvious that some materials would not be affected by these chemicals. Other materials that are situated in the device so as not to come in contact with any of these chemicals need not be tested as this test is for the normal operation of the device.

Section 159.117(b) is new and is intended to test the ability of the device to withstand spillage of items listed in § 159.117(b)(1–5), which are all likely to be used in or around the device.

Section 159.119 has been changed from the advance proposal from 0°C to 2°C to enable the laboratory to test the operation without using ice or having to add salt to the 0°C water. The 50°C was kept because a device might be reasonably expected to operate in that temperature range.

The key test requirement is § 159.121, the sewage processing test. The advance proposal has not been altered by this proposal, but there has been some clarification as a result of comments and further tests. This test requires that the device work as it is intended after the earlier tests have been completed. This test is supposed to simulate as closely as possible the operation of a device as it would be on board a vessel.

As a result of comments received stating that artificial sewage gives results that are inconsistent with human sewage, § 159.121(c) requires that human sewage be used in the test. The amount of human sewage is designated differently here than in the advance proposal. The requirement to test the device at 25 percent over its capacity is proposed in recognition of the probable degradation of the performance of the device over its useful life. The test uses the 8 hour day for 10 days within a 20 day period to allow the facility to conduct its test during regular business hours within the normal work week.

Section 159.121(d) is new and it requires the use of fresh domestic sewage when testing a device that is so large as to be impractical to test using unit charges or when testing a continuous flow device. Since the ship board sewage is stronger and less desirable than municipal sewage, domestic sewage with a high amount of suspended solids (500 milligrams) is the closest simulation to the actual usage of the device.

Section 159.123 is changed from the test procedures in the advance proposal. The arithmetic mean has replaced the geometric mean for measuring; a geometric mean could have one extremely highly bacteria count and still meet the desired average. The number of samples has been increased from 20 to 30 to reflect the taking of 3 samples a day for 10 days. The method of taking the samples is changed. By taking the samples at the beginning, middle, and end of each testing day the test will show the devices effectiveness when first used during a day, and when the device has been in operation for 8 full hours.

Section 159.125 is completely changed from the advance proposal's test for visible floating solids. The turbidity in the middle of the beaker must be less than 50 tubidity units if the device is to be certified.

The note to § 159.125 refers to the Federal Water Pollution Control Act, which prohibits the discharge of harmful quantities of oil into U.S. navigable waters. This note does not add any restrictions. It merely emphasizes that when, by spillage from the mechanisms or by the discharged effluent, there is enough oil to violate the Federal Water Pollution Control Act, the device cannot be certified.

It is the Coast Guard's desire to receive comments on this notice that are based on as complete an understanding of the impact of these proposed regulations as possible. The following information is an attempt at providing that understanding.

The no-discharge standard adopted by EPA on June 23, 1972, becomes effective for new vessels 2 years after initial promulgation (the date on which the final regulations that are based on this notice are published in the FEDERAL REGISTER) of implementing Coast Guard regulations and for existing vessels five years after such promulgation. Section 312 of the FWPCA defines new and existing vessels as follows:

*New*—a vessel whose construction was initiated after promulgation of implementing Coast Guard regulations.

*Existing*—a vessel whose construction was initiated before promulgation of implementing Coast Guard regulations.

For many years the Cost Guard has considered the initiation or commencement of construction to be the laying of a keel or similar stage of construction.

However, 40 CFR 140.3 of EPA's standards provide that:

(1) Any existing vessel equipped with a MSD which is certified by the Coast Guard as being capable of providing a degree of treatment which (a) under the conditions of the certification program to be established by the Coast Guard, will reduce fecal coliform bacteria to no more than 1,000 per 100 milliliters and prevent the discharge of an effluent with visible floating solids; and (b) is installed on or before the date of initial promulgation of implementing Coast Guard regulations under section 13(b)(1) of the Act, or within three years after the time of promulgation, shall not be required to comply with the no discharge standard. This exemption from compliance with the no-discharge standard shall continue so long as the device remains operable.

(2) Any existing vessel equipped with a MSD certified as provided in (1) above which is installed after three years from the date of initial promulgation of implementing Coast Guard regulations under section 13(b)(1) of the Act, but before the effective date of the no-discharge standard with respect to existing vessels, shall not be required to comply with the no-discharge standard for three years following such effective date: provided, that the device remains operable.

Assuming a hypothetical date on which the implementing Coast Guard regulations are promulgated, the effect on new and existing vessels would be as follows under present EPA standards:

*Assumption:* Implementing Coast Guard regulations are promulgated on June 1, 1974.

*Therefore:* An existing vessel is one whose construction was initiated before June 1, 1974.

A new vessel is one whose construction was initiated after June 1, 1974. The no-discharge standard becomes effective for new vessels on June 1, 1976, and for existing vessels on June 1, 1979.

*Assumption:*

1. The "xyz" Manufacturing Co., has its No. 1 MSD certified by the Coast Guard. The No. 1 MSD is a discharge treatment type device.

2. The "xyz" Manufacturing Co.'s, No. 2 MSD is not certified by the Coast Guard. The No. 2 MSD is a discharge treatment type device.

3. The "xyz" Manufacturing Co., has its No. 3 MSD certified by the Coast Guard. The No. 3 MSD is a no-discharge type device.

4. The "xyz" Manufacturing Co.'s, No. 4 MSD is not certified by the Coast Guard. The No. 4 MSD is a no-discharge type device.

*Hypotheticals based on above assumptions:*

1. An existing vessel has a No. 1 type MSD installed on or before June 1, 1974. That MSD can be used as long as it operates property.

2. An existing vessel has a No. 1 type MSD installed after June 1, 1974, but no later than June 1, 1977. That MSD can be used as long as it operates properly.

3. An existing vessel has a No. 1 type MSD installed after June 1, 1977 but before June 1, 1979. That MSD can be used until June 1, 1982. After June 1, 1982, if this existing vessel is to be equipped with an installed MSD, the MSD must bear a Coast Guard certification number and meet the no-discharge standard. (The Coast Guard certification number will be issued as evidence that the installed MSD is in all material respects substantially the same as the appropriate test device certified by the Coast Guard to meet EPA standards.)

4. An existing vessel has either a No. 2 or No. 4 type MSD installed before June 1, 1979. Neither MSD can be used on or after June 1, 1979. If this existing vessel is to be equipped with an installed MSD on or after June 1, 1979 the device must bear a Coast Guard certification number and meet the no-discharge standard.

5. An existing vessel has a No. 3 type MSD installed before, on or after June 1, 1979. That MSD can be used as long as it operates in a manner to meet the no-discharge standard.

6. An existing vessel has a MSD installed on or after June 1, 1979. The MSD must bear a Coast Guard certification number and meet the no-charge standard.

7. If a new vessel is equipped with an installed MSD on or after June 1, 1976, the MSD must bear a Coast Guard certification number and meet the no-discharge standard (regardless of what type MSD was installed before June 1, 1976).

8. A new vessel has a No. 3 MSD installed before June 1, 1976. That MSD can be used as long as it operates in a manner to meet the no-discharge standard.

The time limitations imposed by the EPA regulations require the Coast Guard to certify flow-through MSD's for five (5) years: from the date the implementing Coast Guard regulations are promulgated until the effective date of the no-discharge standard. It is expected that the certification program for flow-through MSD's will only be in full swing until MSD manufacturers are ready to market MSD's that meet the no-discharge standard.

The Coast Guard is also required to certify no-charge devices (this notice includes proposed procedures for their certification) and will continue to do so as long as the Coast Guard is required to certify compliance with the no-discharge standard.

In consideration of the foregoing the Coast Guard proposes to amend Title 33 of the Code of Federal Regulations by adding a new part 159 to read as follows:

## PART 159—MARINE SANITATION DEVICES

### Subpart A: General

**§ 159.1 Purpose.**

This part prescribes regulations governing the design and construction of marine sanitation devices and procedures for certifying that marine sanitation devices meet the regulations and the standards of the Environmental Protection Agency promulgated under section 312 of the Federal Water Pollution Control Act (33 U.S.C. 1322), to eliminate the discharging of untreated sewage from vessels into the waters of the United States, including the territorial seas. Subpart A of this part contains regulations governing the manufacture and operation of vessels equipped with marine sanitation devices.

**§ 159.3 Definitions.**

In this part:

(a) "Discharge" includes, but is not limited to, any spilling, leaking, pouring, pumping, emitting, emptying, or dumping.

(b) "Marine sanitation device" and "device" includes any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage.

(c) "Manufacturer" means any person engaged in manufacturing, assembling, or importation of marine sanitation devices or of vessels subject to the standards and regulations promulgated under section 312 of the Federal Water Pollution Control Act.

(d) "Person" means an individual, partnership, firm, corporation, or association, but does not include an individual on board a public vessel.

(e) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce.

(f) "Sewage" means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body waste.

(g) "United States" includes the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Canal Zone, and the Trust Territory of the Pacific Islands.

(h) "Vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on the navigable waters.

(i) "Recognized facility" means any laboratory or facility listed by the Coast Guard as a recognized facility under this part.

(j) "Coast Guard" means the Commandant or his authorized representative.

(k) "Inspected vessel" means any vessel that is required to be inspected under 46 CFR Ch. I.

(l) "Uninspected vessel" means any vessel that is not required to be inspected under 46 CFR Ch. I.

**§ 159.5 Requirement for vessel manufacturers.**

No manufacturer may manufacture for sale, sell, offer for sale, or distribute for sale or resale any vessel that is subject to the standards and regulations promulgated under section 312 of the Federal Water Pollution Control Act Amendments of 1972 unless it is equipped with a marine sanitation device that has a label placed on it under § 159.16.

**§ 159.7 Requirement for vessel operators.**

No person may operate a vessel that is subject to the standards and regulations promulgated under section 312 of the Federal Water Pollution Control Act Amendments of 1972 if that vessel is not equipped with an operable marine sanitation device that has a label placed on it under § 159.16.

### Subpart B: Certification Procedures

**§ 159.11 Purpose.**

This subpart prescribes procedures for certification of marine sanitation devices and recognition of facilities for the purpose of conducting tests and evaluations of marine sanitation devices.

**§ 159.13 Application for certification.**

(a) Any manufacturer may apply to any recognized facility for certification of a marine sanitation device. The application for certification must indicate if the device will be used aboard all vessels or only aboard vessels which are not required to be inspected under 46 CFR Ch. I.

(b) An application may be in any format but must be in writing and must be signed by an authorized representative of the manufacturer and include or be accompanied by—

(1) A complete description of the manufacturer's production quality control and inspection methods, record keeping systems pertaining to the manufacture of marine sanitation devices, and testing procedures;

(2) The design for the device, including drawings, specifications and other information that describes the materials, construction and operation of the device;

(3) The installation, operation, and maintenance instructions for the device; and

(4) The name and address of the applicant and the manufacturing facility.

(c) The manufacturer must furnish the recognized facility one device of each model for which certification is requested and samples of each material, from which the device is constructed, that must be tested destructively under § 159.117. The device furnished is for the testing required by this part except that, for devices that are not suited for unit testing, the manufacturer may submit the design so that the recognized facility may determine the components of the device and materials to be submitted for testing and the tests to be performed at a place other than the facility. The Coast Guard must review and accept all such determinations before testing is begun.

(d) At the time of submittal of an application to a recoginzed facility the manufacturer must notify the Coast Guard of the type and model of the device, the name of the recognized facility to which application is being made, and the name and address of the manufacturer, and a signed statement of the times when the manufacturer will permit designated officers and employees of the Coast Guard to have access to the manufacturer's facilities and all records required by this part.

**§ 159.15 Certification.**

(a) The recognized facility must evaluate the device and all submitted information for compliance with this part and test the device and materials as described in this part and forward to the Coast Guard the following:

(1) A report on compliance evaluation;

(2) A description of each test;

(3) Test results, including failures;

(4) A statement signed by the person in charge of the testing that the test results are accurate and complete; and

(5) The information required under § 159.13(b).

(b) If the recognized facility submits the reports required by this part and the Coast Guard determines, upon examination of the reports and other pertinent data and information, that the marine sanitation device meets the requirements of this part, the Coast Guard certifies, on the design for the device, that the device meets the standards and regulations.

(c) If a device is not certified, the Coast Guard will notify, in writing, the applicant and the recognized facility of each requirement of this part which has not been met.

(d) An applicant may appeal to the Coast Guard for reconsideration of a denial of certification or change in certification.

(e) Certifications are valid for 5 years and may be renewed by the Coast Guard upon the written request of the manufacturer.

(f) The manufacturer of a certified device shall inform the Coast Guard, in writing, upon cessation of manufacturing of the device.

(g) The Coast Guard may cancel the certification of a test device if it is found, upon re-examination, that a test device did not, in fact, comply with the requirements of this part at the time it was certified.

**§ 159.16 Letter of certification.**

(a) The Coast Guard issues a letter authorizing each manufacturer of a test device that has been certified by the Coast Guard under this part to label each marine sanitation device that he manufactures with the manufacturer's certification that the device is in all material respects substantially the same as a test device certified by the United States Coast Guard pursuant to section 312 of the Federal Water Pollution Control Act Amendments of 1972.

(b) Certification placed on a device by its manufacturer under this section is the certification required by section 312 (h) (4) of the Federal Water Pollution Control Act Amendments of 1972, which makes it unlawful for a vessel that is subject to the standards and regulations promulgated under the Act to operate on the navigable waters of the United States, if such vessel is not equipped with an operable marine sanitation device certified pursuant to section 312 of the Act.

(c) Letters of authorization issued under this section are valid for 5 years, unless sooner suspended, withdrawn, or terminated and may be reissued upon written request of the manufacturer to whom the letter was issued.

(d) The Coast Guard, in accordance with the procedure in 46 CFR 2.75, may suspend, withdraw, or terminate any letter of authorization issued under this section if the Coast Guard finds that the manufacturer is engaged in the manufacture of devices labeled under this part that are not in all material respects substantially the same as a test device certified pursuant to this part.

**§ 159.17 Changes to certified devices.**

(a) The manufacturer of a device certified under this part shall report each change to the device to the Coast Guard.

(b) Change reports must be accompanied by the recommendations of the manufacturer and of a recognized facility as to whether the device is in all material respects substantially the same as the device certified under this part.

(c) The Coast Guard will notify the manufacturer and the recognized facility, in writing, of any tests that must be made for certification of the changed device or of any change of certification of the device.

**§ 159.19 Testing Equivalency.**

(a) The Coast Guard may determine that previous or alternative tests of a marine sanitation device are equivalent to the test requirements of this part upon application of the manufacturer.

(b) This determination, when made known to the applicant in writing, is a final action on the application.

RECOGNITION OF FACILITIES

**§ 159.31 Application.**

(a) Any laboratory or facility may apply for listing by the Coast Guard as a "recognized facility."

(b) The application must be in writing and contain the name and address of the facility; a description of the facility's capability to perform the testing and evaluations required in this part, including information on personnel, equipment, materials, and facilities; and a signed statement that the Coast Guard will be permitted access to the laboratory or facility for the purpose of verifying its capabilities and inspecting the records pertaining to certification of marine sanitation devices.

(c) The Coast Guard may require other pertinent information.

**§ 159.33 Requirements for a recognized facility.**

A recognized facility must maintain all records and data submitted to it or obtained by it under this part and all records of evaluations and tests including, but not limited to, identification of each device tested, names of persons authorized to attest to the accuracy and completeness of the reports, and the details and results of the evaluations and tests. The records and data for each device shall be kept at least five years after cessation of manufacture of the device. The recognized facilities shall make these records available to the Coast Guard upon request.

**§ 159.35 Listing of recognized facilities.**

(a) If the Coast Guard finds that the facility is capable of performing the tests and evaluations in this part, the Coast Guard will list the facility as a recognized facility.

(b) The Coast Guard will furnish a list of recognized facilities to any person upon request.

(c) The Coast Guard may remove any facility from the list of recognized facilities at any time that the facility does not meet the requirements of this part or if any report required by this section is not factual, accurate, or complete.

## Subpart C—Design, Construction, and Testing

### § 159.51 Purpose.

(a) This part prescribes regulations governing the design and construction of marine sanitation devices.

(b) Unless otherwise authorized by the Coast Guard each device for which certification under this part is requested must meet the requirements of this subpart.

### § 159.53 General.

A device must either—

(a) Be designed to prevent the overboard discharge of sewage, treated or untreated, or of any waste derived from sewage; or

(b) Be capable of providing a degree of treatment that will reduce fecal coliform bacteria to no more than 1,000 per 100 milliliters and prevent the discharge of an effluent with visible floating solids, under the test conditions described in §§ 159.123 and 159.125 of this subpart.

### § 159.55 Identification.

(a) Each production device must be permanently and legibly marked in accordance with paragraph (b) of this section with the following information:

(1) Name of manufacturer.

(2) Name and model number of the device.

(3) The date of completion of manufacture (month and year).

(4) Serial number and Coast Guard certification number.

(5) Average and peak capacity (flow rate, volume, or number of persons served) of the device and the period of time for which it is rated to operate at peak capacity.

(6) The power requirements, voltage, and current.

(7) The type and quantity of fuel required.

(8) The type and quantity of chemicals required.

(9) The cycle time for a unitized incinerating device.

(10) The maximum angles of pitch and roll at which the device operates and at which its discharge meets the requirements in §§ 159.123 and 159.125.

(11) Water (salt, fresh or brackish) in which the device is designed to operate.

(12) For any sewage retention tank that is designed to operate under pressure, the maximum hydrostatic pressure (selected by the manufacturer) at which the tank meets the requirement in § 159.111.

(13) The maximum operating level of liquid retention components.

(14) The type vessel for which it is certified.

(b) The lettering must be stamped, cast, or molded into the device or labeling plate. If a labeling plate is used, it must be constructed of metal or of the same material as the outer panels of the device and riveted, bolted, or screwed to the device. Adhesive means of fastening are not acceptable. The lettering must be one-eighth inch or larger.

### § 159.57 Installation, operation, and maintenance instructions.

(a) The instructions supplied by the manufacturer must have directions for—

(1) Installing the device so that all parts requiring servicing are readily accessible and any required flue clearance is provided;

(2) Safely operating and servicing the device so that any discharge meets the requirements in §§ 159.123 and 159.125;

(3) Cleaning, winter layup, and ash or sludge removal;

(4) Installing vent pipe or flue pipe;

(5) Handling, storage, and use of any chemicals necessary for operating the device; and

(6) Recommended methods of making required plumbing and electrical connections and any recommended supply circuit overcurrent protection, and fuel connections.

(b) The instructions supplied by the manufacturer must include—

(1) A complete parts list;

(2) A schematic diagram showing the relative location of each part; and

(3) A wiring diagram.

(4) A description of the service that may be performed by the user without coming in contact with sewage or chemicals.

### § 159.59 Placard.

The user operating directions, safety precautions, and warnings, if any, for each device must be printed in one-eighth inch or larger letters on a placard suitable for posting.

### § 159.61 Vents.

Vents must be designed and constructed so as not to clog from the contents of the tank.

### § 159.63 Access to parts.

Each part of the device that is required by the manufacturer's instructions to be routinely serviced must be readily accessible.

### § 159.65 Chemical level indicator.

The device must have a means of indicating the remaining supply of any chemical necessary for operating the device.

### § 159.67 Electrical component ratings.

Electrical components must have current and voltage ratings equal to or greater than the maximum load they may carry.

### § 159.69 Motor ratings.

Motors must be rated for operation in 50° C ambient temperature.

### § 159.71 Electrical controls and conductors.

Electrical controls and conductors must be installed in accordance with good marine practice. Wire must be copper and must be stranded when subject to vibration and flexing caused by the operation of the device. Electrical controls and conductors must be protected from exposure to chemicals or sewage.

### § 159.73 Conductors.

Current carrying conductors must be electrically insulated from the non-current carrying metal parts.

### § 159.75 Overcurrent protection.

Overcurrent protection must be provided within the unit to protect subcomponents of the device if the manufacturer's recommended supply circuit overcurrent protection is not adequate for these subcomponents.

### § 159.79 Terminals.

Terminals must be solderless lugs with ring type or captive spade ends, have provisions for being locked against movement from vibration, and must be marked for identification with a circuit diagram. Terminal blocks must be nonabsorbent and securely mounted. Terminal blocks must be provided with insulation that prevents contact between adjacent terminals or metal surfaces.

### § 159.81 Baffles.

Baffles in sewage retention tanks, if any, must have openings to allow liquid and vapor to flow freely across the top and bottom of the tank and to allow removal of all liquids and solids in the sewage tank.

### § 159.83 Level indicator.

Any sewage retention tank must have a means of indicating the level of the sewage without requiring or resulting in body contact with the sewage. This level indicator must be accurate, when the device and the level indicator are in the manufacturer's recommended installed positions, through its entire range with a maximum error of plus or minus ten percent of the maximum capacity except that when the tank is full, the level indicator must not indicate less than full.

### § 159.85 Sewage removal.

The device must be designed for efficient removal of all liquid and solids in the sewage retention tank.

### § 159.87 Removal fittings.

If sewage removal fittings or adapters are provided with the device, they must be of either 1½" or 4" nominal pipe size.

### § 159.89 Power interruption: discharge devices.

A discharge device must be designed so that loss or loss and restoration of power during operation of the device does not allow a discharge that does not meet the requirements in §§ 159.123 and 159.125.

### § 159.91 Effluent sample: discharge devices.

A discharge device must have a means to obtain a sample of the effluent discharged from the device from inside the vessel in which it is installed.

**§ 159.93 Independent supporting.**

The device must have provisions for supporting that are independent from connecting pipes.

**§ 159.95 Safety.**

(a) Each device must—

(1) Be free of design defects (*a*) that may cause bodily injuries, such as rough or sharp edges, or (*b*) that may generate toxic substances that would escape to the interior of the vessel;

(2) Have all combustible components self-extinguishable, in accordance with ASTM STD. D–635;

(3) Be vented or provided with a means to prevent an explosion or over pressurization as a result of an accumulation of gases; and

(4) Meet all other safety requirements of the regulations applicable to the type of vessel for which it is to be certified.

(b) A chemical that is specified or provided by the manufacturer for use in the operation of a device and is defined as a hazardous material in Title 46 CFR Part 146 must be certified by the procedures in 46 CFR Part 147.

(c) Current carrying components must be protected from accidental contact by personnel operating or routinely servicing the device. All current carrying components must be of drip-proof construction or be enclosed within a drip-proof compartment.

**§ 159.97 Safety: inspected vessels.**

The design and construction of a device to be certified for installation and operation on board an inspected vessel must be shown by tests and reports of inspection to be consistent with applicable marine engineering requirements in subchapter F of title 46, Code of Federal Regulations, and with applicable electrical engineering requirements in subchapter J of title 46, Code of Federal Regulations.

TESTING

**§ 159.101 Testing: general.**

Unless otherwise authorized by the Coast Guard, a recognized facility must perform each test described in § 159.103 through § 159.125. The same device must be used for each test and tested in the order in which the tests are described. There must be no cracking, softening, deterioration, displacement, breakage, leakage or damage of components or materials or other evidence of failures of the device after each test described in §§ 159.103 through 159.117 and in 159.121, and the device must remain operable after the test described in § 159.119. The device must be set up in a manner simulating installation on a vessel in accordance with the manufaceurer's instructions with respect to mounting, water supply, and discharge fittings.

**§ 159.103 Vibration test.**

The device with liquid retention components, if any, one-half full of water, must be subjected to a sinusoidal vibration for a period of 12 hours, 4 hours in each of the x, y, and z planes, at the resonant frequency of the device (or at 55 cycles per second if there is no resonate frequency between 10 to 60 cycles per second) and with a peak to peak amplitude of 0.019 to 0.021 inches.

**§ 159.105 Shock test.**

The device, with liquid retention components, if any, one-half full of water, must be subjected to 5000 vertical shocks that are ten times the force of gravity (10g) and have a duration of 20–25 milliseconds measured at the base of the half-sine wave shock envelope.

**§ 159.107 Rolling test.**

(a) The device, with liquid retention components, if any, one-half full of water, must be subjected to 100 cycles with the axis of rotation 4 feet from the centerline of the device, no more than 6 inches below the plane of the bottom of the device, and parallel to any tank baffles. The device must then be rotated 90 degrees on its vertical axis and subjected to another 100 cycles. This testing must be repeated with the liquid retention components filled to the maximum operating level as specified by the manufacturer (§ 159.55).

(b) The rolling action must be approximately 15 degrees on either side of the vertical and at a cyclic rate of 3 to 4 seconds. Twenty percent of the prescribed motions must be approximately 30 degrees (or the maximum angle specified by the manufacturer under § 159.55, whichever is greater) on either side of the vertical at a cyclic rate of 6 to 8 seconds.

**§ 159.109 Pressure and Vacuum Pulse Test.**

Liquid retention components of the device must be subjected to 50 fillings of water at a pressure head of 7 feet or the maximum pressure specified by the manufacturer for operation of the device, whichever is higher, and then emptied with a 45 gallon per minute or larger pump that remains in operation 30 seconds after emptying the tank at the end of each cycle.

**§ 159.111 Pressure test.**

Any sewage retention tank that is designed to operate under pressure must be pressurized hydrostatically to 3 psig or to 150 percent of the maximum pressure specified by the manufacturer for operation of the tank whichever is greater. The tank must hold the water at this pressure for one hour with no evidence of leaking.

**§ 159.115 Temperature range test.**

(a) The device must be held at a temperature of −40°C or less for a period of 16 hours following winterization in accordance with manufacturer's instructions.

(b) The device must be held at a temperature of 60°C or higher for a period of 16 hours.

**§ 159.117 Chemical resistance test.**

(a) In each case where doubt exists as to the ability of a material to withstand exposure to the substances listed in paragraphs (b) and (c) of this section a sample of the material must be tested. The manufacturer must propose which materials should be so tested; the recognized facility must submit the proposed testing to the Coast Guard when the facility is in doubt. This section does not apply to any material located in the device where the substance cannot contact the material either by flushing the substance through the device or spilling it on the device.

(b) A sample of the material must be partially submerged in the following substances for 100 hours at an ambient temperature of 22°C:

(1) Sewage.

(2) Any disinfectant that is required in the operation of the device.

(3) Any chemical compound produced in the operation of the device.

(4) Fresh and/or salt (3.5% Sodium Chloride) flush water.

(5) Toilet bowl cleaners.

(6) Engine Oil (SAE #30).

(7) Ethylene Glycol.

(8) Detergents (household and bilge cleaning type).

(c) A sample of the material must be doused 20 times, with a 1 hour drying period between dousings, in each of the following substances:

(1) Gasoline.

(2) Diesel fuel.

(3) Mineral spirits.

(4) Turpentine.

(5) Methyl alcohol.

**§ 159.119 Operability test; temperature range.**

The device must operate in an ambient temperature of 5°C with inlet water temperature varying from 2°C to 32°C and in an ambient temperature of 50°C with inlet water temperature varying from 2°C to 32°C.

**§ 159.121 Sewage processing test.**

(a) The device must process human sewage in the manner for which it is designed when tested in accordance with this section. There must be no sewage or chemicals used in treating the sewage remaining on surfaces or in crevices that could come in contact with a person using the device or servicing the device in accordance with the instructions supplied under § 159.57(b)(4).

(b) During the test the device must be operated and maintained in accordance with the manufacturer's instructions. Any initial start up time specified by the manufacturer must be allowed before test periods begin. For 1 hour out of each 8 hour test period, the device must be tilted to the maximum angles specified by the manufacturer under § 159.55 and 159.57. For purposes of the visible floating solids determination and evaluating the operational effectiveness of the device, the device must receive one filter tip cigarette per hour.

(c) Except for devices described in paragraph (d) of this section, the device must process and discharge or store

human sewage over at least an 8 consecutive hour period on at least 10 days within a 20 day period. The device must receive an amount of fresh human sewage, consisting of fecal matter, urine, and toilet paper, that is 25 percent greater than the average capacity specified by the manufacturer for the device for each 8 hour period.

(d) A device that processes and discharges continuously between individual use periods or a large device, as determined by the Coast Guard, must process and discharge or store sewage over at least 10 consecutive days at the average daily capacity specified by the manufacturer. During three periods of each day the system must process sewage at the peak capacity for the period of time it is rated at peak capacity. The sewage for this test must be fresh, settled, domestic sewage with a minimum of 500 milligrams of suspended solids per liter.

**§ 159.123 Coliform test: discharge devices.**

(a) The arithmetic mean of the fecal coliform bacteria in 30 samples of effluent discharged from a discharge device during the test described in § 159.121 must be less than 1000 per 100 milliliters when tested in accordance with 40 CFR 140.5.

(b) The 30 samples must be taken from the device as follows: One sample must be taken at the beginning, middle, and end of an 8 consecutive hour period during each of the 10 test days.

**§ 159.125 Visible floating solids: discharge devices.**

Each of 30 aliquots from the samples obtained under § 159.123(b) must be settled as detailed in the Settleable Matter Test (by weight) in accordance with the 13th edition of "Standard Methods For the Examination of Water and Wastewater" except that the settling period will be 15 minutes in lieu of 1 hour. The turbidity of at least 29 of 30 aliquots withdrawn from the middle of the beaker after the settling period, when tested by the Nephelometric Method in accordance with the 13th edition of "Standard Methods For the Examination of Water and Wastewater", must be less than 50 turbidity units.

(NOTE: 33 U.S.C. 1321(b)(3) prohibits discharge of harmful quantities of oil into or upon the navigable waters of the United States or adjoining shorelines or into or upon the waters of the contiguous zone. Under 40 CFR 110.3 and 110.4 such discharges of oil include discharges which:

(a) Violate applicable water quality standards, or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

If a sample contains a quantity of oil determined to be harmful, the Coast Guard will not certify the device.)

**§ 159.127 Safety Coliform count: recirculating devices.**

Each of 30 samples of flush fluid from a recirculating device must have less than 1000 fecal coliform bacteria per 100 milliliters. These samples must be collected in accordance with § 159.123(b) and tested in accordance with 40 CFR 140.5.

**§ 159.129 Safety: Ignition prevention test.**

(a) Components of a device that are a potential ignition source in an explosive atmosphere must pass the test in paragraph (b) or (c) of this section or meet the requirements of paragraph (d) of this section.

(b) Components protected by vapor exclusion must be placed in a chamber filled with a rich mixture of gasoline or propane in air with the pressure being varied from 0 to 2 psig once an hour for 8 hours. Vapor readings must be taken in the void being protected and must indicate a leakage less than 20 percent of the lower explosive limit of the mixture in the chamber.

(c) Components providing ignition protection by means other than vapor exclusion must be fitted with an ignition source, such as a spark plug, and a means of injecting an explosive mixture of gasoline or propane and air into the void that protects the component. Connections must be made so as to minimize any additional volume added to the protected void by the apparatus delivering the explosive mixture. The component must be placed in a chamber filled with an explosive mixture and the following tests conducted:

(1) Using any overload protection that is part of the device, the potential ignition source must be operated for one half hour at 110 percent of its rated voltage, one half hour at 50 percent of its rated voltage and one half hour at 100 percent of its rated voltage with the motor or armature locked, if the potential ignition source is a motor or part of a motor's electrical circuit.

(2) With the explosive mixture in the protected void, the test installed ignition source must be activated 50 times.

(3) The tests in paragraph (C)(1) and (2) of this section must be repeated with any plugs removed.

There must be no ignition of the explosive mixture surrounding the component.

(d) Components that are certified as being intrinsically safe in accordance with the Instrument Society of America (RP 12.2) or explosion proof in accordance with the Underwriters Laboratories STD 698 in Class I, Group D hazardous locations (46 CFR 111.80–5(a)) need not be subjected to this testing.

**§ 159.131 Safety: Incinerating device.**

An incinerating device must not incinerate unless the combustion chamber is closed, must purge the combustion chamber of combustible fuel vapors prior to and after incineration, must secure automatically if the burner does not ignite, must not allow an accumulation of fuel, and must neither produce a temperature on surfaces adjacent to the incineration chamber higher than 67°C nor produce a temperature on surfaces in normal body contact higher than 41°C when operating in an ambient temperature of 25°C. Unitized incineration devices must completely burn to a dry, inert ash a simultaneous defection and urination and must not discharge fly ash, malodors, or toxic substances.

This notice is proposed under the authority of Secs. 2 and 4 of the Federal Water Pollution Control Act (33 U.S.C. 1322(b)(1) and (g)(2)), as delegated by the Secretary of Transportation to the Commandant in 49 CFR 1.46(*l*).

Dated: February 25, 1974.

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